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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,344	06/16/2005	Martin Woollett	124289	7374
25944 7590 11/05/2008 OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850				
EXAMINER				
KHAN, MEHMOOD B				
ART UNIT		PAPER NUMBER		
2617				
MAIL DATE		DELIVERY MODE		
11/05/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/539,344

Applicant(s)

WOOLLETT ET AL.

Examiner

MEHMOOD B. KHAN

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34-66 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34-66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-US)
Paper No(s)/Mail Date 06/16/2005
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

- Claims 1-33 have been canceled.
- Claims 34-66 have been submitted as part of a preliminary amendment.

Claim Objections

Claim 39 objected to because of the following informalities: Claim 39 recites "licence", which should be changed to – license --. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 49 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 49 recites the limitation "the time" in lines 8-9 of claim 49. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 34, 36-38, 40, 41, 43-46, 53 and 54 are rejected under 35

U.S.C. 102(b) as being anticipated by Ferrari (US 5,949,352).

Claim 34, Ferrari discloses a first station for mounting with one of the measuring device and the coordinate positioning apparatus (**Col 1: 15-35, where Ferrari discloses a measurement device mounted on a machine**); Ferrari discloses a second station for mounting with the other of the measuring device and the coordinate positioning apparatus (**Col 1: 15-20, where Ferrari discloses a remote receiving station**); Ferrari discloses wherein the first and second stations communicate using a spread spectrum radio link (**Col 6: 25-30, where Ferrari discloses spread spectrum communication**).

Claim 36, Ferrari discloses wherein the measurement device is a measurement probe (**Col 1: 25-30, where Ferrari discloses that it is well known in measuring systems to use probes**).

Claim 37, Ferrari wherein the measurement probe is a touch trigger probe (**Col 1: 25-30, where Ferrari discloses a contact detecting probe**).

Claim 38, Ferrari discloses wherein the measurement probe is a scanning probe (**Col 6: 35-40, where Ferrari discloses a deflection detection means**).

Claim 40, Ferrari discloses wherein the first and second stations are provided with a clock and wherein the clocks are synchronised at least once (**Fig. 1: 17, Fig. 2:**

27, where Ferrari discloses clock generators, Col 2: 3-7, where Ferrari discloses synchronous signals).

Claim 41, Ferrari discloses wherein the first station transmits a regular transmission and wherein when the second station receives the signal it will synchronise its clock with the first station **(Col 2: 3-7, where Ferrari discloses synchronization extraction).**

Claim 43, Ferrari discloses wherein in the event of a measurement event, the first station may transmit information relating to said measurement event **(Col 2: 33-35, where Ferrari discloses transmission of a change of state of the probe).**

Claim 44, Ferrari discloses wherein said measurement event is a touch trigger event **(Col 1: 25-30, where Ferrari discloses contact detection).**

Claim 45, Ferrari discloses wherein said measurement event is position measurement **(Col 2: 7, where Ferrari discloses position detection).**

Claim 46, Ferrari discloses wherein said information includes data relating to the time of the measurement event **(Col 4: 18-21, 52-57, where Ferrari discloses a time for change of state and the instant of time a change occurs).**

Claim 53, Ferrari discloses wherein when a signal transmitted by the first station contains information relating to the measurement device, the measurement device

output signal in the second station is produced after a time delay (**Col 2: 32-38, where Ferrari discloses inserting a fixed delay time**).

Claim 54, Ferrari discloses wherein the time delay is chosen so that it is long enough to allow retransmissions of the signal within the time delay (**Col 45-55, where Ferrari discloses a variable delay and transmission of a state change of the probe**).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 35, 39, 42, 47-49, 52, 55, 56, 61, 62, 65 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferrari in view of Cornwall et al. (US 2002/0071478 herein Cornwall).

Claim 35, Ferrari does not explicitly disclose wherein the first and second stations frequency hop between different frequencies.

In an analogous art, Cornwall discloses wherein the first and second stations frequency hop between different frequencies (**0011, where Cornwall discloses that it is well known to synchronize based on transmission on several frequencies**). Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify Ferrari to use frequency hopping as taught by Cornwall so as to improve synchronization **(0011)**.

Claim 39, Ferrari does not explicitly disclose wherein the transmission system uses a worldwide licence [sic] free radio frequency band.

In an analogous art, Cornwall wherein the transmission system uses a worldwide licence [sic] free radio frequency band **(0004, where Cornwall discloses the ISM band)**. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ferrari to use the ISM band as taught by Cornwall so as to bypass obtaining a license **(0004)**.

Claim 42, Ferrari does not explicitly disclose wherein the first and second stations frequency hop between different frequency channels and wherein when the first and second stations are synchronised, their frequency hopping is synchronised.

In an analogous art, Cornwall discloses wherein the first and second stations frequency hop between different frequency channels and wherein when the first and second stations are synchronised, their frequency hopping is synchronised **(0011, where Cornwall discloses that it is well known to synchronize based on transmission on several frequencies and avoidance of interference and jamming)**. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ferrari to use frequency hopping as taught by Cornwall so as to improve synchronization **(0011)**.

Claim 47, Ferrari discloses wherein the first station transmits a regular transmission and wherein information relating to the measurement event is transmitted in an additional transmission (**Col 4: 1-10, Fig. 3: ST sequence, where Ferrari discloses a ST sequence, and regular transmission afterwards**).

Claim 48, Ferrari does not explicitly disclose wherein in the event of receiving a transmission from the second station, a measurement event is performed and the first station transmits data relating to said measurement event.

In an analogous art, Cornwall discloses wherein in the event of receiving a transmission from the second station, a measurement event is performed and the first station transmits data relating to said measurement event (**0003, 0023, 0026, where Cornwall discloses collecting data, polling the transmitters and transmission of data**). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ferrari to use polling to wake up sensors as taught by Cornwall so as to extract data at desired times.

Claim 49, Ferrari discloses the measurement device comprises a touch trigger probe (**Col 1: 25-30, where Ferrari discloses a contact detecting probe**); Ferrari discloses wherein in the event of a touch trigger event (**Col 1: 25-30, where Ferrari discloses a contact detecting probe**), Ferrari discloses the first station may transmit an additional signal which includes data relating to the time of the touch trigger event (**Col 4: 1-10, Fig. 3: ST sequence, where Ferrari discloses a ST sequence, and regular transmission afterwards**), Ferrari discloses wherein the second station is provided with means for receiving said data representing the time (**Fig. 2: 21, where**

Ferrari discloses a receiver, Col 4: 18-21, 52-57, where Ferrari discloses a time for change of state and the instant of time a change occurs), Ferrari discloses providing a probe output signal derived therefrom **(Col 6: 15-21, where Ferrari discloses state of the probe).**

Ferrari does not explicitly disclose the first and second stations hop between a series of different frequency channels; wherein the first station transmits a regular signal and wherein if the second station receives the signal it will synchronise with the first station.

In an analogous art, Cornwall discloses the first and second stations hop between a series of different frequency channels; wherein the first station transmits a regular signal and wherein if the second station receives the signal it will synchronise with the first station **(0011, where Cornwall discloses that it is well known to synchronize based on transmission on several frequencies).** Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ferrari to use frequency hopping as taught by Cornwall so as to improve synchronization **(0011).**

Claim 52, Ferrari does not explicitly disclose wherein the transmission system comprises a half duplex link.

In an analogous art, Cornwall discloses half duplex **(0024, where Cornwall discloses that it is well known to use half duplex links).** Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ferrari to use half duplex communication as taught by Cornwall so as to adhere to a tried method and limit the use of the spectrum.

Claim 55, Ferrari discloses wherein a master clock is provided at one end of the transmission system (**Fig. 1: 17, where Ferrari discloses a generator clock**).

Ferrari does not explicitly disclose a sliding correlator is provided to recover the master clock.

In an analogous art, Cornwall discloses a sliding correlator is provided to recover the master clock (**0008, where Cornwall discloses synchronizing using a correlator**). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ferrari to use a known correlator as disclosed by Cornwall so as to improve synchronization and adhered to tried methods (**0008**).

Claim 56, Ferrari discloses wherein a master clock is provided at one end of the transmission system (**Fig. 1: 17, where Ferrari discloses a clock generator**), Ferrari discloses wherein the master clock provides a reference for the measurement device output signal time delay (**Fig. 3: ST sequence, where Ferrari discloses a start sequence, Col 2: 3-7, where Ferrari discloses synchronism**).

Claim 61, Ferrari does not explicitly disclose wherein if the first and second stations are not synchronised, the first and second stations will hop between frequency channels at different rates until the second station receives a signal and synchronises with the first station.

In an analogous art, Cornwall discloses wherein if the first and second stations are not synchronized (**0011, where Cornwall discloses synchronization and signal acquisition**), Cornwall discloses the first and second stations will hop between

frequency channels at different rates until the second station receives a signal and synchronises with the first station **(0011, where Cornwall discloses that an FFT determines a frequency of interest and synchronization with hopping codes)**.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ferrari to use frequency hopping as taught by Cornwall so as to improve synchronization **(0011)**.

Claim 62, Ferrari does not explicitly discloses wherein if the second station detects background noise above a predetermined level on the selected frequency channel, it will change to a different frequency channel.

In an analogous art, Cornwall discloses wherein if the second station detects background noise above a predetermined level on the selected frequency channel, it will change to a different frequency channel **(0006, 0007, where Cornwall discloses FHSS, and interference)**. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ferrari to use frequency hopping as taught by Cornwall so as to improve synchronization **(0011)**.

Claim 65, Ferrari discloses a first station for mounting with one of the measuring device and the coordinate positioning apparatus **(Col 1: 15-35, where Ferrari discloses a measurement device mounted on a machine)**; Ferrari discloses a second station for mounting with the other of the measuring device and the coordinate positioning apparatus **(Col 1: 15-20, where Ferrari discloses a remote receiving station)**.

Ferrari does not explicitly disclose wherein the first and second stations may communicate on different frequency channels and wherein if the second station hears significant noise on a certain frequency channel, it will hop to another frequency channel.

In an analogous art, Cornwall discloses wherein the first and second stations may communicate on different frequency channels and wherein if the second station hears significant noise on a certain frequency channel, it will hop to another frequency channel **(0011, where Cornwall discloses that it is well known to synchronize based on transmission on several frequencies and avoidance of interference and jamming)**. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ferrari to use frequency hopping as taught by Cornwall so as to improve synchronization **(0011)**.

Claim 66, as analyzed with respect to the limitations as discussed in claim 37.

Claims 50 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferrari in view of Belski et al. (US 6,657,552 herein Belski).

Claim 50, Ferrari does not explicitly disclose wherein if a signal transmitted by the first station is not adequately received by the second station, the signal is retransmitted by the first station.

In an analogous art, Belski discloses wherein if a signal transmitted by the first station is not adequately received by the second station, the signal is retransmitted by the first station **(Col 11: 45-53, where Belski discloses responses to messages to acknowledgements)**. Therefore, it would have been obvious to one of ordinary skill in

the art at the time the invention was made to modify Ferrari to use acknowledgements as taught by Belski in order to recover corrupt data.

Claim 51, Ferrari does not explicitly disclose wherein if the second station receives the signal transmitted by the first station, it transmits an acknowledgement signal and if the first station does not receive an acknowledgement signal in response to its signal, it will re-transmit said signal.

In an analogous art, Belski discloses wherein if the second station receives the signal transmitted by the first station, it transmits an acknowledgement signal and if the first station does not receive an acknowledgement signal in response to its signal, it will re-transmit said signal **(Col 11: 45-53, where Belski discloses responses to messages to acknowledgements)**. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ferrari to use acknowledgements as taught by Belski in order to recover corrupt data.

Claim 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ferrari in view of Cornwall in view of Belski.

Ferrari in view of Cornwall does not explicitly disclose wherein if the second station receives a signal from the first station it transmits an acknowledgement signal and wherein the acknowledgement signal is synchronised with the master clock.

In an analogous art, wherein if the second station receives a signal from the first station it transmits an acknowledgement signal **(Col 11: 45-53, where Belski discloses responses to messages to acknowledgements)**, Belski discloses wherein the acknowledgement signal is synchronised with the master clock **(Col 7: 44-46, where**

Belski discloses a synchronization). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ferrari to use acknowledgements as taught by Belski in order to recover corrupt data.

Claims 58 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferrari in view of Li et al. (US 6,405,136 herein Li).

Claim 58, Ferrari does not explicitly disclose wherein a signal sent between the first and second stations comprises data bits and wherein data bits relating to more important information are provided with greater error protection than other data bits.

In an analogous art, Li discloses wherein a signal sent between the first and second stations comprises data bits and wherein data bits relating to more important information are provided with greater error protection than other data bits (**Col 3: 3-5, where Li discloses that bits are given protection and hamming codes**). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ferrari to encode data bits as taught by Li so as to protect transmitted data.

Claim 59, Ferrari does not explicitly disclose wherein the data bits relating to more important information may be provided with a higher hamming distance than other data bits.

In an analogous art, Li discloses wherein the data bits relating to more important information may be provided with a higher hamming distance than other data bits (**Col 12: 55-63, where Li discloses that bits are given more protection than other bits and Hamming codes**). Therefore, it would have been obvious to one of ordinary skill in

the art at the time the invention was made to modify Ferrari to encode data bits as taught by Li so as to protect transmitted data.

Claims 60, 63 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferrari in view of Armstrong et al. (US 2002/0175805 herein Armstrong).

Claim 60, Ferrari does not explicitly disclose wherein the first station transmits regular signals and wherein the first station has a mode and wherein each regular signal asks if the first station should change mode, and wherein if the first station receives an affirmative response, it changes mode.

In an analogous art, Armstrong discloses wherein the first station transmits regular signals and wherein the first station has a mode and wherein each regular signal asks if the first station should change mode, and wherein if the first station receives an affirmative response, it changes mode **(0060, where Armstrong discloses acknowledgements and inactivity)**. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ferrari to change modes as taught by Armstrong so as to shorten the time for operations **(0014)**.

Claim 63, Ferrari does not explicitly disclose wherein the first station has an ID code and wherein the second station can be set to only communicate with the said first station having said ID code.

In an analogous art, Armstrong discloses wherein the first station has an ID code and wherein the second station can be set to only communicate with the said first station having said ID code **(0018, where Armstrong discloses a re-select method**

and identification). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ferrari to change modes as taught by Armstrong so as to shorten the time for operations **(0014)**.

Claim 64, Ferrari does not explicitly disclose wherein the first station is provided with a mode in which it transmits a signal containing its ID code and the second station is provided with a mode in which on receiving said signal, it is set to only communicate with the first station having this ID code.

In an analogous art, Armstrong discloses wherein the first station is provided with a mode in which it transmits a signal containing its ID code and the second station is provided with a mode in which on receiving said signal, it is set to only communicate with the first station having this ID code **(0018, 0060, where Armstrong discloses re-select and Tag_ID)**. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ferrari to change modes as taught by Armstrong so as to shorten the time for operations **(0014)**.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MEHMOOD B. KHAN whose telephone number is (571)272-9277. The examiner can normally be reached on Monday - Friday 8:30 am - 5:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on 571-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the

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/Mehmood B. Khan/
Examiner, Art Unit 2617

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